

DOCUMENT RESUME

ED 280 969

CE 046 762

AUTHOR Jennings, Zellynne D.; Edmond, Daniel
TITLE Belize's Rural Education and Agriculture Programme:
Some Factors that Have Contributed to Its Success.
INSTITUTION London Univ. (England). Inst. of Education.
PUB DATE May 86
NOTE 45p.; Paper presented at the Vocationalising
Education Conference (London, England, May 7-9,
1986).
PUB TYPE Speeches/Conference Papers (150) -- Reports -
Descriptive (141)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Agricultural Education; Developing Nations;
Educational History; Program Content; Program
Development; *Program Effectiveness; *Rural
Development; *Rural Education; Rural Youth; Secondary
Education; Vocational Education; *Youth Programs
IDENTIFIERS *Belize; *Rural Education and Agriculture Program
(Belize)

ABSTRACT

Belize (formerly British Honduras) has achieved a good deal of success with its Rural Education and Agriculture Programme (REAP). REAP was initiated in 1976 to create the attitudes and provide the skills necessary for rural youth to make meaningful contributions to the country's agricultural development. Initiated by an intraministerial and international agency group, REAP was conceived in three phases extending over a 10-year period. During the pilot phase (1976 to 1979) the program was tested in eight primary schools in three of the country's six districts and in one secondary school. A special program was developed to train teachers for the REAP program, and outdoor education centers were constructed in each pilot school to give students an opportunity to apply their learning in an agricultural setting. The main thrust of the district level phase (1979 to 1982) was the expansion of REAP to all six districts in Belize with the gradual transfer of much of the technical and material assistance received from foreign agencies to the government ministries, district-level officials, and community groups and service organizations. REAP's national-level phase began in 1982. REAP has received favorable evaluations from students and teachers alike, and 80 percent of the program's graduates have remained in rural Belize in some form of agriculture. The program is not without shortcomings, including perhaps too much stress on gardening at the expense of academic training. Despite these, there is little evidence to suggest that the program's goal of becoming a real force in Belize's socioeconomic development is overly ambitious. (MN)

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ED280969

VOCATIONALISING EDUCATION CONFERENCE

7-9 May, 1986

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SOME FACTORS THAT HAVE CONTRIBUTED TO ITS SUCCESS

Zellynne D. Jennings and Daniel Edmond

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BELIZE'S RURAL EDUCATION AND AGRICULTURE PROGRAMME:
SOME FACTORS THAT HAVE CONTRIBUTED TO ITS SUCCESS

Zellynne D. Jennings Ph.D.

Daniel Edmond

Paper to be presented at a conference on Vocationalising Education to be held at the University of London Institute of Education, Department of International and Comparative Education, 7 - 9 May 1986.

BELIZE'S REAP PROGRAMME

What kind of education rural youths in developing countries need is of course a question which has been very keenly debated. Some argue that rural and urban youths should be exposed to a single system of general education. A major reason given for this is that, since there is no evidence that employment opportunities are determined by education, it is difficult to forecast what specific skills rural youths will need to find employment. Any special 'rural education' would only serve to limit the chances of social mobility of rural youths in comparison with their urban counterparts (Barber 1981). Others, however, have made a case for an agriculture-oriented education for rural youths on such grounds as that the formal educational system has failed to serve the rural areas adequately (Coombs 1973) and that such an education would help to stem the tide of large-scale migration to urban areas (Balogh 1966). It has further been contended, however, that if life is unattractive in the rural areas, rural youths will reject an agriculture-oriented education anyway, and since the kind of education these youths have had has no effect on the likelihood of their migration, they will migrate to the cities as long as better opportunities are available there (Foster 1965). "Giving youths an inferior quality of schooling" writes Anderson (1974), "hardly keeps them out of the towns. Schooling designed deliberately to discourage their migration puts rural youths in a still more disadvantaged position in finding work than had their schooling been better" (p.37)

There have of course been successful attempts at meeting the educational needs of people from rural backgrounds; for example,

the Rural University in Colombia (Barber 1981). Equally, many innovative attempts at 'ruralising' education in developing countries have fallen by the wayside. But then this is not peculiar to innovations in rural education. Much has been written about attempts to bring about change in Third World educational systems which have failed. Incompatibility of the values embedded in the innovation with the cultural values of the user system (Kay 1975), ignorance on the part of development assistance agencies of the poverty of educational situations in the Third World (Heyneman 1984) and a lack of proper planning of educational change (Havelock and Huberman 1977; Ejiogu 1980) are amongst the reasons given for such failures. This paper however, tells a different tale. Its main concern is with an innovation in the Third World which has achieved a good deal of success; namely, the Rural Education and Agriculture Programme (REAP) in Belize. A discussion of the main factors that have contributed to this innovation's success is the major thrust of this paper. More specifically, this paper seeks to assess the extent to which REAP is achieving its objectives of developing positive attitudes towards agriculture and influencing young people to remain in rural Belize and engage in agricultural work. Special emphasis will be given to REAP's change process which should prove instructive particularly to educational planners in the developing world since REAP is being looked to as a model by countries in Latin America, Africa and the Caribbean (Massey 1982). An appropriate starting point, however, seems to be an overview of Belize and some background to its

3.

educational system.

Overview of Belize

Belize (formerly British Honduras), has much in common with other ex-British colonies but it also has a set of cultural, historical, geographical and economic characteristics which make it unique in the Caribbean. Only 8,866 sq.mls in area Belize is bordered on the north by Mexico, on the West and South by Guatemala and to the East it faces the Caribbean. Belize is slightly larger than El Salvador, but whereas the latter has a population of some five million, Belize's population totals only about 152,000. This sparse population gives Belize an average of about 17 people per sq.ml. This is a source of tremendous potential but it is also a source of envy and possible conflict from its rural populous neighbours. Since the early 1960's Guatemala has laid claim to the territory of Belize - a querk of fate that has caused serious setbacks to the political, social and economic development of the nation and has made "national unity appear as hard to find in Belize as the Holy grail" (Thorndike 1983 p.207). Belize is the most depressed of the ex-British colonies in the Caribbean today. One writer has described Britain's treatment of it as "a classic of colonial exploitation, of taking away and not giving back ... of all the wealth taken from the country practically nothing was put back in the way of permanent improvements and capital development"

(Carey Jones 1953 p.18). Although self-governing since 1964, Belize did not gain its independence from Britain till 1981, some two decades after most of its Caribbean neighbours.

And yet Belize is blest with a cultural diversity unrivalled by any of its neighbours. The Belizean people are a fusion of Creoles (Afro-Belizeans) who comprise some fifty percent of the population, Mestizos (of Hispanic-Indian origin) who make up some twenty five percent of the population, Black Caribs (descendants of Africans and Carib Indians) and descendants of the Mayans. Other ethnic groups include East Indians, Chinese, Lebanese and some German-speaking Mennonites who over the past twenty years have had a strong impact on agriculture in Belize. In addition, since the early 19 's between five to seven thousand refugees from war-torn El Salvador have settled in Belize and are being assisted by the Belizean government (with the help of the United Nations High Commission for Refugees) to become established in farming. An estimate of as much as ten thousand Guatemalan refugees have also settled in Belize (Broad 1984).

The Belizean economy is centred largely around the sugar industry, citrus farming and fishing. There is also a slight emphasis on tourism. Belize's wealth, however, lies in its land. Although some forty percent of the country is arable, only about ten percent of the land suited to agriculture is in use. As a result there is a dependency on foreign foodstuffs which causes a drain on the national economy. Subsistence farming, the relative

lack of public services, high levels of unemployment and under employment have all contributed to an exodus from rural Belize to the towns and Belize city. This has exacerbated the country's underutilization of the potentially productive agricultural sector. To stem this tide, the Government of Belize has, since the early 1970's made special effort to orient its educational system to agriculture in an attempt to harness this potential wealth. For example, Government's mandate is that secondary schools' syllabi should be "scientifically oriented particularly towards those sciences which are relevant to the development of agriculture" (Government of Belize 1977 p55).

Background to Belize's educational system

Primary education in Belize is free and compulsory to age fifteen. It consists of eight grades of instruction which take the child from infant through to senior primary.¹ There are some 203 primary schools in Belize about 75% of which are located in the rural areas. As in other ex-British Caribbean territories, the Belizean primary school curriculum follows on the British model of academic training mainly in mathematics, language arts, science social studies, the arts and religion. Most of the curriculum materials come from Britain or the United States with the result that much of the content does not take into account the cultural diversity of Belizean children. The language of these materials,

for example, invariably is too difficult for the majority of these children for whom English is a second language. Drop-out rates of the primary schools are high. So is the failure rate for the Belize National Primary Education Examination (BNPE)², with the result that almost half of the primary school population is unable to attain secondary education. Rural children are particularly disadvantaged with between 40-50 percent of them never going beyond the eighth grade (Massey 1982). Reasons given for this have ranged from the quality of instruction and poor educational facilities to the low level of teacher education. Only about 36% of Belize's primary school teachers are trained. The common practice is for untrained teachers to be recruited from the graduating classes of secondary schools, given short teachers' courses and encouraged to undertake further studies. Less than forty percent of secondary school teachers are university graduates.

The prospects of these children who manage to get into one of the twenty two secondary schools and complete their training are none too bright because opportunities for higher education in Belize are limited. A private Roman Catholic College offers a two-year course leading to an associate of Arts and Science degree, while an extension of the University of the West Indies offers College level courses in conjunction with the Belize College of Education. The Belize College of Arts, Science and Technology (BELCAST) trains technicians needed in the upper and lower levels of the economy, while students who graduate from the

Belize Technical College are able to gain employment in commercial enterprises, construction, business and the trades. A growing number of students with academic qualifications, however, are finding it increasingly difficult to find jobs in supervisory and managerial roles in the public and private enterprise, which is all the more reason for the governments' thrust towards vocational training in the technical and commercial fields in order to "increase the students' potential for gainful employment after graduation " (The New Belize 1982 p.11).

In a system that has for so long structured primary and secondary schools' curricula along academic goals oriented to College and University education, only a very small percentage of rural children can realistically be expected to overcome the economic and social constraints that block their aspirations. It is hardly surprising then that so many of them leave school ill-equipped for further education or for the world of work. It was in the hope of redressing the desperate plight of these rural youths that the Belizean government in 1976 launched the Rural Education and Agriculture Programme (REAP), " a project that will create the attitude and provide the skills necessary for young people to make meaningful contributions to the agricultural development of the country" (Government of Belize 1977 p.54).

REAP: The change process

From the standpoint that an innovation is "a deliberate, novel, specific change which is thought to be more efficacious in accomplishing the goals of a system" (Miles 1964), REAP can be described as an innovation. It was initiated by a unique intra-ministerial and international agency group comprised of representatives from the Ministries of Education and Sports, Social Welfare and Natural Resources (agriculture), CARE (The Cooperative American Relief Everywhere) Heifer Project International (HPI) and the U.S. Peace Corps-a group that later formed the REAP Advisory Committee (REAP-AC). The innovation was designed with a view to preparing rural children in Belize for a more rewarding life in the countryside and to enabling them to participate in the development of the agricultural basis of the national economy to the mutual benefit of themselves and the nation. These aims were to be achieved through the development of a new curriculum relevant to rural Belizean life, the retaining of teachers with a rural development orientation and with skills in curriculum integration. In addition, school farms were to be set up to serve as outdoor laboratories.

REAP was conceived in three phases (See Table 1) extending over a ten year period before becoming fully institutionalized. By agreement between the Belizean government and the international aid agencies, the latter during the pilot phase (July 1976-June 1979) would provide the bulk of the technical and material assistance and logistical support needed. During this phase, REAP was piloted

in eight primary schools in three of the six districts³ in Belize and in one secondary school. In addition, a special programme was developed for the training of teachers for REAP schools at the Belize College of Education (BCE). Construction also began of Outdoor Education Centres (ODEC) in each pilot school. These consisted of a new building, garden, crops, rabbit hutches etc. for the practical application of learning in an agricultural setting. Storage units later replaced the function of these ODECS. A number of these units were built during the 1981-2 school year. HPI supplied at cost feeders, wire, chicks, baby rabbits and some feeds. The Peace Corps volunteers served both as technical support/coordinators of the pilot schools and as lecturers for the BCE REAP programme. CARE supplied tools, equipment, some agricultural supplies, transportation support and some financial assistance in the construction of the ODECS. The Belize Ministry of Education had the responsibility of both training teachers and principals in the pilot schools and supplying an education officer to manage the project. Training was done largely through workshops the length of which varied from two weeks to two days. Between July 1976 and February 1979 some ten workshops were held at which teachers were trained in the use of equipment and record keeping. They were also given agricultural skill training and were introduced to principles in curriculum development such as integration and the writing of performance objectives. Twenty similar workshops were held during the District Level phase.

Learning Activity Packs (LAPs) were developed at some of these workshops. LAPs really constitute the core of REAP. They are outlines of lessons for appropriate grade levels in which teachers are given performance objectives related to a REAP area of study, suggested activities and instructional materials required and reading references. These LAPs were developed around nine areas of study: Land and water, soil, health and nutrition, ecology, animals, village study, weather, plants and agricultural practices. These served as the 'threads' to integrate the academic subjects - Language Arts, Maths, Social studies, Science, the Arts and Religion.

Various strategies were used to disseminate information about REAP, both to supplement workshops for teachers and principals and to inform the public at large. For example, a newsletter was started in 1977, and a twice weekly radio programme initiated in the same year. In 1981 another fifteen-minute weekly radio programme - 'the REAP experience' - came on stream. Knowledge of REAP was also disseminated through slide-tape presentations shown to service clubs and the wider community. A REAP agricultural manual (Let's Reap together) was produced in 1979. It provides the basics of tropical gardening, chicken raising and rabbit rearing.

The main thrust of the District Level Phase (July 1979-June 1982) was the expansion of REAP to all six districts in Belize with the gradual transfer of much of the technical and material assistance and logistical support from foreign agencies to the government ministries,

district level officials, community groups and service organisations. This transfer is expected to be completed by the end of the National Level phase when it is anticipated that REAP would have expanded to some two-thirds of the rural primary school system, incorporating urban schools where possible. REAP District Councils are expected to take on the brunt of the work. These Councils are located in each of the six districts. They are made up of the principals of all REAP schools in the district, District Education and agricultural officers local denominational school managers, and representatives from parents, the government ministries and service clubs. The main purposes of these Councils are: to support the establishment and implementation of REAP: to initiate policies and plan strategies for the successful implementation of REAP within the district: to advise REAP-AC.

REAP'S IMPACT

Attitudes to agriculture and effect on urban migration.

One of the present authors (Edmond 1985) administered a questionnaire designed to ascertain attitude to agriculture to 60 students randomly selected from Standard VI in 8 REAP schools in three districts in rural Belize and to 30 students in non-REAP schools similarly selected. A similar questionnaire was given to 30 randomly selected teachers, twenty of whom were from the REAP schools and the remainder from non-REAP schools. On the same questionnaires, the perceptions of the respondents of selected attributes of REAP which research has shown to influence the users' adoption of an innovation (Rogers and Shoemaker 1971) were sought. These attributes were: relative advantage (i.e. the degree to which REAP is perceived as better than an academic curriculum): compatibility (i.e. the degree to which REAP is perceived as compatible to the values and needs of its users): complexity (i.e. the degree to which REAP is perceived difficult to understand - or components of it difficult to use): observability (the degree to which the results of REAP are visible). T-tests were used to ascertain significant differences amongst the sample. Finally, a third questionnaire was administered to a random selection of 18 graduates from REAP schools requesting them to state the type of work they had been involved in since leaving school and to identify what they felt were the main advantages of having attended a REAP school.

Edmond's study revealed that overall both REAP and non-REAP teachers and students had positive attitudes to agriculture. Labour on the land for Belizeans never acquired the stigma of work "seen as a condition imposed by a master upon a servant as the price of the servants' survival" (Manley 1974, p.152) which characterized the impact of slave labour on the Jamaican people, for example. In fact, in rural Belize, the milpa, or small subsistence farm, is still seen as an avenue to economic stability since any other form of occupation in the countryside is hard to come by. The REAP programmes no less than the academic curriculum in non-REAP schools therefore, reinforces already existing attitudes towards the land which are a function of the social and economic experiences of the rural Belizeans. On the other hand Edmond's finding that there were no significant differences between the attitude to agriculture of REAP and non-REAP students lends support to the evaluator of REAP who reported that in the REAP schools, the new curriculum had not yet succeeded in supplanting its academic predecessor (Massey 1982). The evaluator observed that in a number of the schools little use was being made of the LAPs because the teachers did not understand how to blend the lesson plans required by the Ministry of Education with the LAPs. To some District Education Officers, for example, the LAPs did not constitute proper lesson plans and there was also some resistance to the use of the LAPs from supervisors in the Belize College of Education.

Teachers in REAP schools had positive perceptions of the relative advantage of the agriculture programme. They saw it as 'giving students a better idea of agriculture', 'enabling students to become self-employed', and 'helping families to prepare better diets'. There were, however, significant differences in the perceptions of REAP and NON-REAP teachers on the compatibility of REAP to their values. REAP teachers expressed the need for the agriculture programme to be subject to formal examinations whereas NON-REAP teachers were of the opinion that agriculture was not as important an area of study as the academic subjects and, therefore, needed no examination. A NON-REAP teacher said, "too much time is spent on agriculture. Too little time is given for the rest of the subjects," while another teacher summed up the opinion of the majority of REAP teachers thus: "people have not recognized agriculture as important as it should be and (they) tend to reward an academic child for head (i.e. cognitive) knowledge." Whereas both REAP and NON-REAP teachers agreed that "there is dignity in the world of work for those who work with their hands," NON-REAP teachers tended to emphasize such negative features of the REAP programme they had observed as "parents complain of their children getting dirty" and the fact that there was a lack of varied job opportunities for REAP graduates. REAP teachers, however, accentuated the more positive results of the REAP programme

especially the affective ones. A typical comment was :

REAP gives a child a sense of dignity
in producing for himself. REAP
creates in the child a sense of cooperation,
sharing and the value of partnership.

With respect to the REAP school graduates, Edmond found that 80% of these remained in rural Belize involved in some form of agriculture. One REAP student after graduating from High School had returned to a REAP school to teach. To these graduates, the value of having attended a REAP school was largely educational. They had learnt a great deal , they said, about how to grow plants and crops and tend animals. Economic and social advantages were also pinpointed by the graduates. Typical comments were: "I now grow my own vegetables to eat and sell" and "I learnt how to make myself a better citizen."

Some Shortcomings

Although in general, students in both REAP and NON-REAP schools considered the agricultural programme to be compatible with particularly the educational and social values they cherished, there were some disadvantages that they highlighted. REAP students, for example, complained that in their schools there was a tendency to focus on gardening with not enough attention being given to the academic areas.

There were some social disadvantages too. A typical comment, for example, was "farming takes a lot of cooperation and some people are lazy." REAP students, moreover, perceived their programme as causing them difficulties. This is captured in the following comment:

We have to clean the area with a machete.
We have to dig up the soil in the hot sun.
We have to go a far distance to find water.

The physical conditions of work in the school garden appears to be posing REAP students with the most serious problems. They have no proper clothing for agricultural work. Tools and equipment are scarce and often very primitive. Cleansing facilities in the rural schools are inadequate and so students experience considerable discomfort when they have to return to the classroom after working in the garden. The students are also wary of their personal safety because first aid provisions are minimal in case of injury. Another pressing problem is praedial larceny of crops which, on top of everything else, serves as a source of demotivation to some of the students.

FACTORS CONTRIBUTING TO REAP'S SUCCESS

In spite of its shortcomings, REAP has achieved a good measure of success and as the evaluator says : "the REAP programme model has the unique potential for becoming a real

force in the socio-economic development of Belize and giving young people more tools and alternatives to use in forging their own destinies" (Massey 1982 p 44). In terms of its contribution to the economy, there is evidence that some increase in local food production has resulted since the inception of REAP (Massey *ibid*). However, research evidence discussed in this paper together with the evaluator's finding that REAP students perform as well as NON-REAP students in the Belize National Primary School Examination suggest that REAP to date has largely served educational purposes. Sinclair (1977) is critical of efforts to link the world of school and the world of work in formal school programmes in Third World countries. The objectives of these programmes, she argues, are invariably very ambitious - relating to the solution of key socio-economic problems, and their eventual collapse is due to weaknesses of strategy, lack of teacher skills and motivation, lack of material resources and the negative responses from clients. There is no evidence at present to suggest that REAP's objectives are overly ambitious, and given that it is still going strong some ten years after its inception it seems worthwhile examining some of the key factors that have contributed to its outcomes so far.

PLANNING

McGinn et al (1979) argue that planning played a critical role in the success of the educational reforms that took place in Chile and El Salvador in the 1960's, but that the type of planning did not conform to the 'rationalist' model that international donor agencies usually require in project plans. A typical example of this 'rationalist' approach to educational change is the Research, Development and Diffusion (RD&D) model. In the version of Clark and Guba (1969) the first stage is RESEARCH of the problem, the main purposes of which are to ascertain the state of knowledge in the area of concern and to determine how this knowledge can be applied to the product being developed. A solution to the problem is then INVENTED and built during the DEVELOPMENT stage. The innovation is introduced to practitioners in the DIFFUSION stage and then fully institutionalized in the educational system in the ADOPTION stage after having gone through a Trial phase. The RD&D assumes that there has to be planning on a massive scale over a long time span. Table I shows the actual change process involved with REAP. The evaluator of REAP observes that "instead of a prolonged conceptualization, development and field trial stage, which normally precedes such a project, it was decided to plunge right into the simultaneous planning, development, implementation and evaluation of REAP" (Massey, 1982, p.44).

Evident from Table I is the fact that the phases of

TABLE 1: MAJOR PHASES IN REAP (BELIZE) CHANGE PROCESS

TIME	SITUATION ANALYSIS
September 1975	1. Advisory committee deliberates rural primary school problem. 2. Search for solutions.
	COLLECTIVE AUTHORITY DECISION
1976	1. Invention of REAP: design 2. B G signs agreement for REAP pilot programme with CARF, HPI, US Peace Corps.
	PLANNING/DEVELOPMENT/ADOPTION/DISSEMINATION
	1. Training course for teachers in pilot schools. 2. Appointment REAP coordinator and manager.
September 1976	3. PILOT PHASE begins (i) Ministry of Agriculture prepares garden sites; construction of ODEC buildings begin
1977	(ii) Workshop for teachers REAP newsletter (iii) 'RAP' commences (iv) Secondary school withdraws (v) Workshop to orientate BCE graduates to REAP (vi) First REAP curriculum guide produced
1978	(vii) Workshop on writing LAPs (viii) 42 LAPs developed (ix) REAP community council meets with REAP-AC
September 1978	(x) LAPs implemented in schools
1979	(xi) 'Let's REAP together' produced (xii) First REAP-trained teachers graduate from BCE (xiii) Preliminary evaluation of REAP
July 1979	4. DISTRICT LEVEL PHASE begins (i) Workshop for pilot school teachers & principals; more LAPs developed. Revision REAP curriculum guide.
1980	(ii) Demonstration workshop for pilot school teachers on use of science laboratory equipment.
1981	(iii) Formative evaluation of REAP (iv) Decision to establish REAP District Councils (v) 'The REAP Experience' radio programme (vi) First Storage Units inaugurated (vii) Printing and publication of 103 LAPs (viii) REAP District Councils established.
July 1982	5. NATIONAL LEVEL PHASE begins (i) Expansion of REAP (ii) Transfer of support role from international to Belizean organizations.
September 1984	(iii) Urban primary school joins REAP
September 1985	(iv) Institutionalization: continued expansion of REAP.

change involved with REAP did not proceed from research but from a deliberation over the problems faced by rural primary school students by an ad hoc committee (REAP Ac) which in fact did not take long to come up with the solution to the problem—namely, the restructuring of primary education through the setting up of REAP. That the phases of change did not proceed from research is not a situation peculiar to REAP. The writer has elsewhere discussed attempts at educational change in Jamaica and the wider Caribbean where research was either lacking altogether or did not conform to the type associated with RD&D (Jennings-Wray 1985a). In the case of Chile and El Salvador, moreover, McGinn et al (1979) observe how "the reform proceeded on the basis of informed judgement but without careful research" (P.223). A further point worth noting is the fact that research is time-consuming and in politically motivated change efforts such as REAP, speed is of the essence since politicians will be concerned with covering as much ground as possible before the next elections. It must, however, be borne in mind that one of the reasons why innovations often failed is because innovators try to achieve far-reaching changes within a most unrealistic time frame of a year or two or less. A period of between five to ten years is regarded as a reasonable time within which an innovation can develop and make some observable impact, (Charters et al 1972). It seems apparent from Table I that the initiators of REAP believed in planning on a large scale with a reasonable time frame in mind.

Planning for a Trial phase is another good feature of the REAP change process, because it was feedback from the teachers in the pilot schools which led to the development of the guide 'let's REAP together' in a response to their needs. If evaluation is effectively built into the pilot phase of a programme, this can yield invaluable data that can provide decision makers with information which can be used to shape the next set of decisions. This was clearly so in the case of REAP. For example, the formative evaluation pointed up differences in problems experienced by project schools when REAP was expanded to all the districts - problems that had to do with circumstances pertaining to the particular district. Hence arose the decision to establish REAP District Councils each of which would have special responsibility for schools in its particular district. The effective functioning of these District Councils has been seen as a key factor to the improvement of REAP's agricultural training policy. The fact that both REAP and NON-REAP students had similar attitudes to agriculture and given too the indication that the REAP curriculum has not yet succeeded in supplanting its academic predecessor, all point to the need for a better organized agricultural training policy. In an effort to achieve this each District Council has been assigned the task of determining a policy that indicates the nature and level of sophistication of agricultural skill needed by people in the respective area so that the curriculum in the

REAP schools in that area could be geared to producing those skills specified.

Finally, the use of mass media for building support for REAP needs to be noted because it has contributed in no mean way to developing the positive attitudes on the part of the user system which have repeatedly been observed (Massey 1982: Edmond 1985).

Government Support and Leadership.

Third World countries which have implemented programmes geared to linking education with the world of work and which have achieved a good measure of success have tended to be those in which this thrust in education is an integral part of the political ideology of the government. Cuba and Tanzania are typical examples. Belize is another. REAP has received strong ideological support from government—more specifically the Peoples' United Party (PUP) which formed the government at the time that REAP was initiated. The Democratic Socialist ideology of the PUP supported the integration of study with the world of work as was stressed by Said Musa, the Minister of Education and Sports in his address at the opening of the annual conference of Education Officers in Belize City in 1980.

"Our educational system must integrate the world of study with the world of work....a school cannot be divorced from its social and economic environment...The value and dignity of work starts in the home but it must be pursued in the schools. Our young people should not only come out of school with some measure of marketable skills but should be well disposed to work with hands and minds in every sector of the Belizean economy....."4

Said Musa was a leading light in the REAP programme ever since its inception in 1975. He was a member of the ad hoc committee that came up with the idea of REAP in the first instance, and when he became the Minister of Education in 1979, REAP could not have had a stronger advocate. Musa was one of the most influential politicians in Belize at the time. He had the confidence, trust and backing of the Prime Minister George Price, and, being a fervent ideologue, he was able to give REAP an impetus which has contributed much to its sustainability to date. That this kind of leadership is crucial for the success of educational reforms is attested to elsewhere in the Third World (McGinn et al 1979: Armstrong 1984).

Mention was made earlier of the necessity for speed in the development and adoption of an innovation that has national significance particularly in democratic nations where time is of the essence when an election is a head. Havelock and Huberman (1977) have shown how in developing countries conflicts in the ideological commitment of successive governments have prematurely nipped in the bud

potentially successful innovations. It is something of a querk of fate that having ruled Belize in excess of thirty years, the PUP should be ousted from power in the general election of December 1984. With the removal of the influence of Said Musa at the Ministry of Education, and with a new political party in power, the fate of REAP hangs in balance.

Funding: The Assistance of International Donor Agencies:

Being the collective effort of the government of Belize and international aid agencies has contributed to the level of success achieved by REAP so far because the international agencies have been able to provide both capital and technical assistance which the government of Belize could not have afforded by itself. Hurst (1983) reminds us that many projects have run into difficulty and failed to function well because the aid recipients cannot meet the recurrent cost implications. He adds further that it is "irresponsible ... for the donor to supply, and the recipient to accept aid which outstrips the absorptive capacity of the recipient to deploy his own resources in support of the aid" (p. 430). Adequate funding of REAP schools has become a pressing problem since the transfer of the support role from international to Belizean organizations begun in 1982. Massey (1982) reports that some schools are experiencing difficulties in obtaining supplies of feeds,

chicks, rabbits as well as farm tools. Ideally, each REAP school is expected to become self-sufficient through the sale of its products, but that objective has not yet been realized. In the meantime, many REAP schools depend on a revolving loan from the Heifer Project International to keep their agricultural projects viable.

Although it has long been recognized that the graduates of REAP schools need financial and material assistance in establishing their own agricultural projects, neither the government of Belize nor the international agencies have the resources to give these youngsters that kind of assistance. Unless the REAP schools can become self-sufficient, or alternative means of financing found, the REAP programme will in the future encounter grave difficulties. The fate of many change efforts in Third World countries has been decided by the question of international aid and technical cooperation. For example, McGinn et al (1979) contend that a main reason for the success of educational reform efforts in Chile and El Salvador in the 1960's had to do with the fact that these countries "had more than ordinary amounts of fiscal and human resources available through international technical assistance" (P.222). The writer has elsewhere shown how inadequate funding has contributed to the failure of certain innovations introduced into the Jamaican educational system (Jennings-Wray 1984:1985b).

Teacher Participation

Teacher participation in an innovation is considered by many to be desirable. Fullan (1982), for example, writes that "if the process is characterized by teacher isolation, the innovation may well get adapted right out of existence or used in a perfunctory way" (p.123). This sort of 'teacher isolation' could well have been associated with such power-coercive strategies used by the innovators of REAP. According to Bennis et al (1969) power coercive strategies depend upon access to political, legal, administrative and economic resources and typically involve the use of legal or administrative power. Usually, with such strategies, major decisions are made by a central government body and then handed down to users (e.g. teachers), who are, in general, regarded as 'powerless functionaries'. This description may well have applied to the teachers at the initiation stage when the intra-ministerial and international agency group made decisions authoritatively about REAP and expected teachers to adopt them. However, the innovators of REAP did not altogether see the teachers in the pilot schools as 'powerless functionaries' since every effort was made to involve them in the development of the LAPs. The need for participation of subordinates in various if not all stages of a change process has rested on claims that have ranged from the fact that such participation would lead to greater commitment, higher staff morale, greater clarity about the innovation, and that it would reduce initial

resistance to the innovation - all of which are deemed to facilitate successful implementation.⁵

Participation of teachers in the REAP pilot schools in the development of the LAPs may well have contributed to their positive attitude towards the agricultural programme which has so far been observed. However, there is no doubt that some problems are being experienced in implementation. One such problem relates to clarity particularly with respect to means of implementation. Teachers in REAP schools are having difficulty in articulating work in the school garden with the use of the LAPs and with the more academic subjects they are accustomed to teaching. The policy of REAP - AC is that each REAP student should spend fifty hours per school year doing supervised agricultural practice. Massey found that most schools exceeded this but they made little use of the LAPs which supply the core of training in agricultural knowledge and skills. In the 1981-2 school year, for example, 16 REAP schools used the LAPs but each school's use varied from 29 to 1 out of a possible 103. Part of the reason for this rests on the shortcoming of the LAPs themselves. The quality of these LAPs have been so below standard that REAP-AC has had to seek the assistance of subject matter experts from time to time. What it takes to develop a LAP has been grossly underestimated. The integration of subject areas formerly treated from a purely academic perspective with the theory and practice of agriculture is a task for

a team of disciplinary specialists of the highest competence with the able assistance of classroom teachers. Lack of funds to engage such expertise may well prove a stumbling block to the development of an effective agricultural training programme.

Threats to REAP's Durability

Teacher Training

Such a programme cannot materialize, however, unless teachers are adequately trained to implement REAP. Since most of the teachers in the rural primary schools are pre-trained they cannot be expected to know how to blend the LAPs with the more academic lesson plans required by the District Education Officers. One day or even two-week workshops are hardly adequate training for the implementation of REAP. Fullan (1982), in fact, has argued that most forms of in-service training are not designed to provide the on-going, interactive cumulative learning necessary to develop new conceptions, skills and behaviours. Training approaches to implementation, says Fullan, need to combine teacher-specific training activities, on-going continuous assistance and support during the process of implementation together with regular meetings with peers and others. Study of the REAP programme is mandatory for all students at the Belize College of Education (BCE) for one year, but it becomes optional in the students' second year. An investigation into

the level of preparedness of graduates of BCE to implement REAP revealed that teachers in REAP schools were not better prepared to implement the integrated curriculum than teachers in NON-REAP schools (Thompson 1982). This has to do in fair measure, with the difficulty experienced over the years in securing the appointment of a Belizean lecturer for the REAP programme at BCE. So far BCE has had to rely on Peace Corps volunteers of whom there is a fairly rapid turnover. The training programme for REAP is therefore far from being stable. The question arises, however, whether a College of Education graduate is the best person to teach in the REAP programme. A College of Agriculture graduate with professional qualification in teaching seems more appropriate for an agriculture-based education. The lure of more lucrative salaries in private enterprise, however, deprives the education system of the best trainees in agricultural skills. But then, this is not a problem peculiar to Belize (Jennings-Wray, 1982).

The Problem of Innovation in a Dual Education System

Developing countries have been criticised for their dependency on educational models borrowed from the developed world which makes them susceptible to a powerful form of 'cultural imperialism' (Carnoy 1984). Belize is no exception. For example, the curriculum of most of its High Schools is modelled off the American model. American Jesuits, in fact,

have a stranglehold on secondary education in Belize and this is tolerated because there is a deep-seated belief that Church control is fundamental to a sound system of education. Full government control of the educational system is not supported by local political parties. Indeed the policy is not for government to assume too much initiative but "to support and encourage educational progress in plans devised and set in operation by the private institutions" (Grant 1976, p. 303). This dual system permits the denominations to plan and implement their own programmes with due disregard of the government's social and economic goals. This was deplored by the Unesco Report (1964) because, for one thing, it led to a situation where "although agriculture is the key to the country's economic development, it is only the last few years that science has claimed more time in the curriculum than Latin and Bible Study" (Grant, 1976, p. 301). The fact that the REAP programme has no planned coherent extension into the higher levels of education does not operate in its favour. As King (1985) observes, programmes such as these "are consequently going to be regarded in different ways from courses that can be developed through high school, college and graduate studies" (p.4). Note that the only secondary school that participated in the pilot phase of REAP withdrew after one year (see Table I) largely on account of the incompatibility of the agricultural programme with its academic curriculum. King (1985) also

observes that even in countries where primary school children are actively encouraged to take pride in agricultural productivity, it is noticeable how in their national primary school examination they are not examined in whatever agricultural skills they have acquired. This is the case with the BNPE.² The message which is very subtly communicated to these rural youths, therefore, is that the acquisition of agricultural skills is really in the final analysis not all that important since selection for secondary school is based on academic proficiency. Perhaps the teachers in the REAP schools in Edmond's study realized this and therefore reasoned that examination of agricultural skills would solve the problem.

What is clearly apparent is that agriculture-based educational programmes with such far-reaching objectives as equipping students with skills "to make meaningful contributions to the agricultural development of the country" can only succeed if they are implemented at all levels of the nation's educational system. Cuba and Tanzania serve as good examples of this. On the other hand, dualism in India's educational system frustrated the objectives of its rural education programme (Sinclair 1977) while in spite of the success that Upper Volta's Rural Education centres achieved, the rural people still preferred their children to go to formal primary schools even though they knew their chances of success were minimal (Colclough and Hallak, 1975). It is not coincidental

that developing countries where rural education programmes have succeeded are those in which rural education is integrated into the entire educational system, from primary through to tertiary. A good example of this is Cuba (Gillette 1978).

Belize prides itself in not intending "to create by higher education a privileged class of elite citizens who will perpetuate the social injustices of colonialism" (Manifesto of Independent Belize 1974-79). Yet it may well be found that by having an agriculture-based education at the lowest level of the school system while supporting a western-type academic model at the higher level, this is exactly what it is doing.

Lack of Employment-generating Strategies

Although the majority of the REAP graduates in Edmond's study had remained in rural Belize, it was clearly evident that the talents of these youths were not being utilized to the fullest. The most worthwhile occupation that any of the graduates had been involved in was tending plants on a citrus farm. Other graduates had worked at anything from craftwork to baby sitting. One of the basic conclusions that have emerged from studies of the links between education and productive work is that education by itself cannot solve the problems of employment and underemployment of human resources (Woodhall 1979; Lillis and Hogan 1984). Edmond (1985) found that all the REAP graduates who migrated to Belize City did so for reasons related to job opportunities. The sort of assistance that

rural youths graduating from REAP schools need to set up their own income-generating agricultural projects neither the government of Belize nor international aid agencies can offer presently. Belize, however, faces what can perhaps be described as a much more serious problem: namely, that "the primary resource of the country, its land, remains in the control of large foreign companies that leave much of their land idle and make Belizeans into independent wage labourers on the remainder" (Bolland 1977, p.8). REAP graduates can hardly be expected to make a meaningful contribution to the agricultural development of Belize if so much of the country's land is in the hands of the foreigners who have no interest in developing it.

CONCLUSIONS

So what kind of education do rural youths in developing countries need? One such country, Belize, has opted for a specially designed rural education and agriculture programme which has so far attained a good deal of success. Although there are some weaknesses in its curriculum, there is no evidence to suggest that overall REAP offers an education which is in any way inferior to that offered by its academic counterpart. REAP students, in fact, perform as well as NON-REAP students on the Belize National Primary School Examination. Although there is evidence that most REAP Graduates remain in the rural areas, this cannot be attributed solely to the impact of the REAP programme. Job opportunities are very limited in rural Belize and the talents of the youths are being underutilized.

There is no doubt, however, that REAP has fired the spirit of the Belizeans and has captured the imaginations of people in other Third World countries who are looking to it as a model. The success that REAP has achieved so far can be attributed to a number of factors. Chief among these, perhaps is the strong ideological support it has received from government, particularly through the advocacy of an influential Minister of Education. Effective planning which incorporated such features as a realistic time frame within which to attain institutionalization, strategies

for disseminating information about the innovation, speedy decision-making in the early stages with the legal and administrative powers to get these decisions adopted and implemented has also played a critical role. To this must be added the attempt to balance out the more 'power-coercive' strategies with the encouragement of participation by teachers in the development phase of the programme in an effort to achieve more effective implementation. The availability of capital and technical assistance by international agencies collaborating with the government of Belize has also helped to make the success REAP has achieved possible. In addition, attitudes towards the agriculture programme have been positive. This most likely stems from the fact that the programme is perceived as compatible with the values of the user system and as having advantages for both the students and the nation as a whole, inspite of whatever difficulties exist with implementation.

REAP, therefore, has many positive supports, but these in themselves are not sufficient to sustain it in the future. For an innovation to be sustained, threats to its durability have to be warded off. Miles (1983) identifies two such threats: 'environmental turbulence' which usually comes in the form of funding cuts or losses in teacher or student population, and career advancement motivation. Funding cuts in the REAP programme have already materialized since the international agencies begun transferring their

support role to local organizations. Career advancement motivation is more important than first meets the eye, because the introduction of any change effort into a school system inevitably involves more work on the part of the teachers and principals. And yet, nowhere is any mention made of incentives to teachers and principals in REAP schools. It may be because the People's United Party was a strong believer in 'voluntary cooperative effort' (Government of Belize 1977). But then there is only so much that volunteers are prepared to do. Fullan's (1982) observation below, is very pertinent:

"The fact that those who advocate and develop changes get more rewards than costs, and those who are expected to implement them experience many more costs than rewards, goes a long way in explaining why the more things change, the more they remain the same. If the change works, the individual teacher gets little of the credit; if it doesn't, the teacher gets most of the blame (p.113).

Other 'threats' that could be mentioned include: inadequacies in the training of teachers for the effective implementation of REAP; a perceived lack of clarity of the innovation by teachers: the persistence of a dual education system in which more importance is attached to academic work particularly at the secondary level: a lack of opportunities locally for further education in agriculture for REAP graduates.

Refinement of the REAP curriculum, assistance to the REAP graduates in setting up their own income - generating

agricultural projects, more effective functioning of the REAP District Councils, the tackling of such problems as praedial larceny and the provision of protective clothing for work in school gardens all need to be dealt with if the REAP programme is to be sustained. However, the event which may well decide the ultimate fate of REAP, has already taken place: the removal of REAP's strongest advocates in the General Elections of December 1984. Conflicts in the ideological commitment of successive governments have in the past nipped potentially successful innovations in the bud. But REAP may yet survive that bitter harvest.

NOTES

1. Infant I, II and Standard I are equivalent to first to third grades in the American system. Standards II and III are equivalent to fourth and fifth grades, while standards IV to VI are equivalent to sixth and eighth grades.
2. The BNPE was implemented for the first time in 1982 and replaced the Primary School Leaving Certificate Examination. It also replaced several other examinations and is now used as the basis for judging: (i) successful completion of primary school: (ii) secondary school entrance: (iii) secondary school scholarship awards. Children who sit the BNPE are tested in Mathematics, Language Arts, Science and Social Studies.
3. The six districts (i.e. geographical areas) in Belize are: Corozal, Orange Walk, Cayo, Toledo, Stann Creek and Belize. REAP was first piloted in the latter three.
4. Our National Educational Policy (address delivered by the Hon. Said Musa, Minister of Education and Sports, at the opening of the Annual Conference of Education Officers, February 1980, Belize City).
5. For further discussion of this see Gross M.; Giacquinta, J.B.; Bernstein, M.: Implementing organizational innovations: a sociological analysis of planned educational change. (Harper & Row, Publishers, New York, 1971) pp.19-40.

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